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**DIRECTORATE OF
INTELLIGENCE**

Intelligence Memorandum

Some Implications of Falling Natural Rubber Prices

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CENTRAL INTELLIGENCE AGENCY
Directorate of Intelligence
January 1971

INTELLIGENCE MEMORANDUM

Some Implications Of Falling
Natural Rubber Prices

Introduction

In March 1970 the US Government announced plans to reduce its natural rubber stockpile by 170,000 tons. Major world producers, including Malaysia and Indonesia, argued that disposals were depressing already falling world market prices. As a consequence, US stockpile disposals were temporarily suspended in September 1970. This memorandum examines the world rubber market trends, evaluates the impact of stockpile sales on world prices, assesses the outlook for rubber prices over the next several years, and estimates the impact on major exporting countries.

Natural Rubber Trends During the Sixties

1. Natural rubber production and consumption increased slowly during the 1960s, growing by about 4% annually. Malaysia, by far the major producer with about 45% of total output, accounted for most of the increase while output from third ranking Thailand also increased rapidly. Second ranking Indonesia's output grew at only about one-half of the world average rate. These three countries together account for about 80% of total

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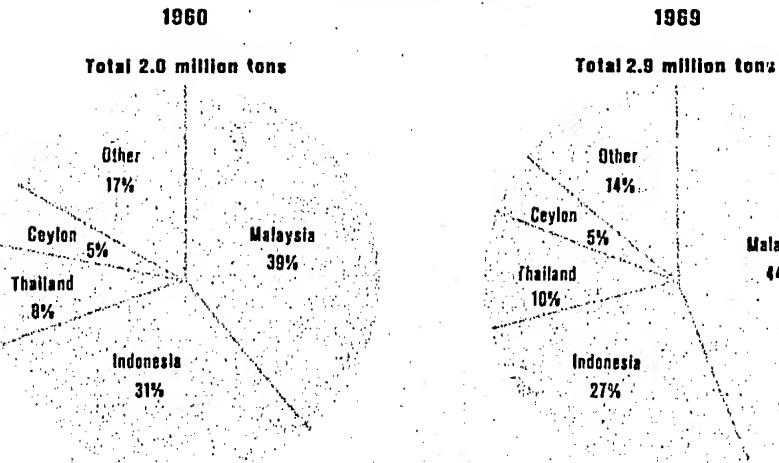
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world output of natural rubber (see Figure 1) and 85% of exports. Among other exporters only Ceylon increased output at a rate faster than the average for total world output. Production in Nigeria, Congo (K), Brazil, and Vietnam either fell or remained unchanged while Liberia's output grew slowly.

FIGURE 1

NATURAL RUBBER PRODUCTION
(Percent of Total)



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2. The demand for natural rubber over the past decade has grown much more slowly than the economies of major consuming countries. In the United States, by far the world's largest market, consumption changed very little and in 1969 was only slightly higher than in 1959. Western Europe's consumption rose somewhat faster, but in 1969 was still only 25% above the level at the start of the 1960s. Among the most rapidly growing major markets for natural rubber in the past decade have been Japan (60%) and Communist China (125%). The sharp rise in Communist Chinese consumption occurred in the late 1960s when truck and complementary tire production increased rapidly. Consumption in other Communist countries, mainly the Soviet Union, has changed little since the early 1960s.

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3. Increasing competition from synthetics is the major reason for the slow growth in natural rubber use. Production and consumption of synthetic rubber expanded rapidly during the immediate post-World War II period and throughout the 1950s, spurred by a shortage of natural rubber supplies. But by the start of the 1960s, natural rubber was no longer in short supply, and a new generation of synthetics had been developed with superior qualities and much wider application than earlier general purpose synthetics. At the same time the synthetic industry in Western Europe and Japan, virtually non-existent until the late 1950s, began a period of rapid development which has continued; these nations have obtained advanced US technology and developed processes of their own. The US synthetic industry has also expanded rapidly -- production rose by roughly 60% in the 1960s -- but the US share of world synthetic production declined from 64% to 42% in 1969.

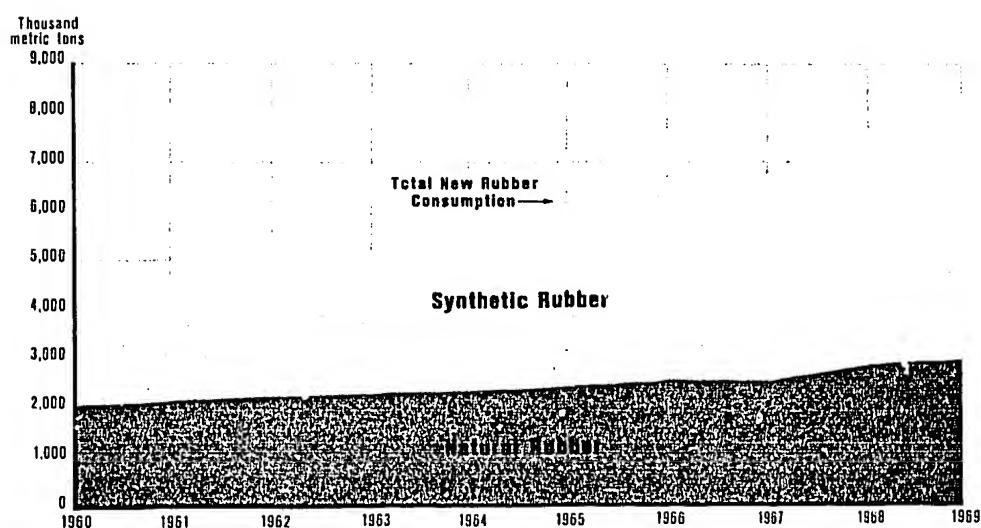
4. With the use of synthetics growing, the importance of natural rubber has fallen steadily and, over time, dramatically (see Figure 2). By the end of the 1960s natural rubber accounted for only about 35% of world new rubber consumption compared with nearly 50% at the start of the decade. Although the pace of substitution has slowed in recent years, natural rubber substitutes continued to make inroads. During 1967-69, for example, synthetics accounted for more than three-fourths of the increase in new rubber consumption. Substitution for natural rubber has gone especially far in the United States where synthetics constitute about 77% of new rubber consumption. In Western Europe and Japan the comparable figure is about 60%.

5. Natural rubber prices during the 1960s were governed largely by synthetic price movements as the two commodities were produced in ample quantities to meet the world demand and the possibilities of substitution between them increased. Synthetic prices declined, mainly reflecting more efficient production. Although price data for synthetics is sketchy at best, probably a reliable indication of the overall trend is the unit value of US styrene-butadiene rubber exports -- the most widely used synthetic. These unit values declined roughly 20%

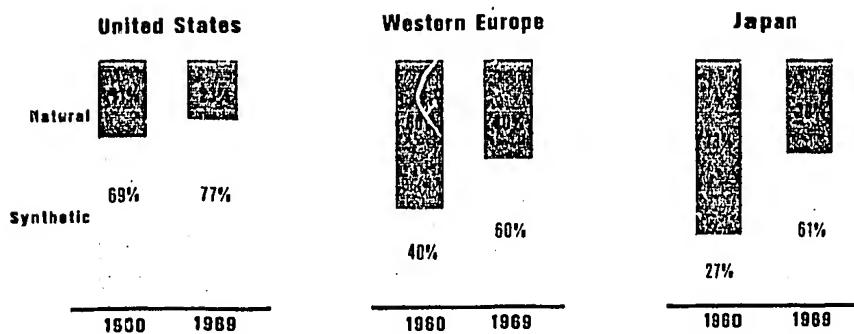
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FIGURE 2

WORLD NEW RUBBER CONSUMPTION



SUBSTITUTION IN MAJOR CONSUMING AREAS



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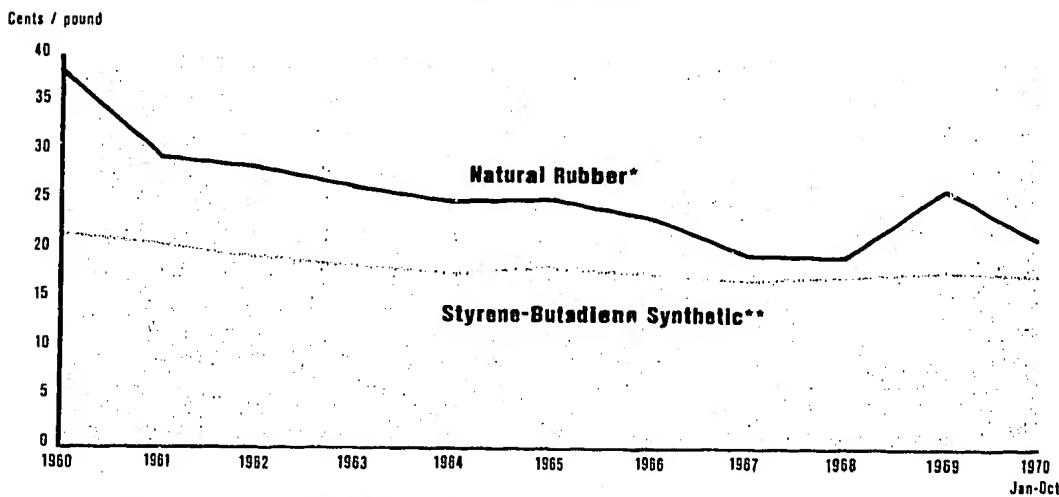
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between 1960 and 1968 -- from about 22 cents a pound to about 17 cents. Prices for other synthetics, especially polyisoprene, which is the closest substitute for natural rubber, and polybutadiene, also fell during most of the 1960s.

6. Natural rubber prices fell even more than synthetic prices (see Figure 3). With the

FIGURE 3

RUBBER PRICES



*C.I.F. New York price for premium grade natural rubber.

**Unit value of US exports.

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increasing availability of higher quality synthetics the price premium for natural rubber had to be cut to avoid even greater market losses. In 1968 the average price for high quality natural rubber was less than 20 cents per pound* compared with approximately 38 cents per pound in 1960 -- roughly a 50% drop. In 1969, however, prices temporarily

* All natural rubber prices in this memorandum are C.I.F. New York and refer to Ribbed Smoked Sheet Number 1.

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jumped sharply to about 26 cents per pound partly because of a steep increase in sales to Communist China -- from an estimated 155,000 tons in 1967 to an estimated 273,000 tons in 1969. US imports also rose sharply during this period and commercial inventories held by all importing countries were increased about 15% in 1969, further adding to demand. These developments were not repeated in 1970 and as pressures on supplies weakened, prices resumed their downward trend. By July 1970 natural rubber prices had again fallen to under 20 cents per pound.

Impact on Natural Rubber Producers

7. Many natural rubber producers adjusted to lower prices without serious difficulties. They increased production to maintain income levels and in many cases reduced costs through modernization programs. Malaysia's rubber industry fared especially well, largely because of rapid increases in productivity. Extensive replanting to new high-yielding variety rubber trees, new tapping techniques, and other innovations helped raise yields from 550 pounds per acre in 1960 to 790 pounds in 1969. While the volume of output on Malaysia's highly modern and vast estates rose by about 50% during the 1960s, the labor force fell by 25% and return on investment remains high. Many former rubber workers are now employed on the same estates, caring for palm trees which were planted in great numbers to replace rubber trees. Output from small holdings rose even more rapidly although productivity gains were probably less significant. Ceylon and Liberia also increased output and lowered production costs, mainly by replanting to high-yielding trees.

8. In Thailand, unlike Malaysia, estates account for a relatively small share of rubber production and consequently efforts to modernize the industry there have progressed slowly. But more acreage has been brought into production and Thailand's rubber output has risen rapidly, almost matching the growth in Malaysian production in recent years. The small-scale producers' reaction to lower prices was to increase output so that incomes could be maintained. By using available family labor, they were able to achieve higher output levels with little additional costs or use of new technology.

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9. In cases where a country's rubber industry has fared badly, the proximate reason was not lower prices. For example, new investment in Indonesian rubber plantations came to a virtual halt after the Sukarno government nationalized foreign-owned estates in the late 1950s and early 1960s. No effort was made to increase productivity among the many small-scale producers and their incentive to produce was further dampened by rampant inflation. Political strife had a devastating impact on the rubber industries of South Vietnam, and the Congo (K).

10. The continued economic expansion of many countries highly dependent on rubber largely reflected their success in developing other export commodities and maintaining political stability. In Malaysia, the most dependent on rubber among major producing countries, real gross national product (GNP) rose at the fairly rapid rate of 6% annually during the 1960s. The ability to sell greater quantities of rubber at continuously lower prices and the development of other commodities, including rice, palm products, and timber, was mainly responsible for this economic prosperity.

11. Malaysian export earnings from rubber fell by about \$200 million between 1960 and 1968 but these losses were more than compensated for by the rapid expansion of other export products. Overall export growth during the decade was about 4% annually. Consequently, during the 1960s Malaysia avoided foreign exchange restrictions, contracted few foreign debts, and retained foreign reserves equivalent to about nine months imports. At the same time, rubber's economic prominence dropped sharply. In 1960 rubber accounted for about 34% of GNP and 55% of total exports, but by 1968 these shares had dropped to 13% and 33%, respectively (see Figure 4).

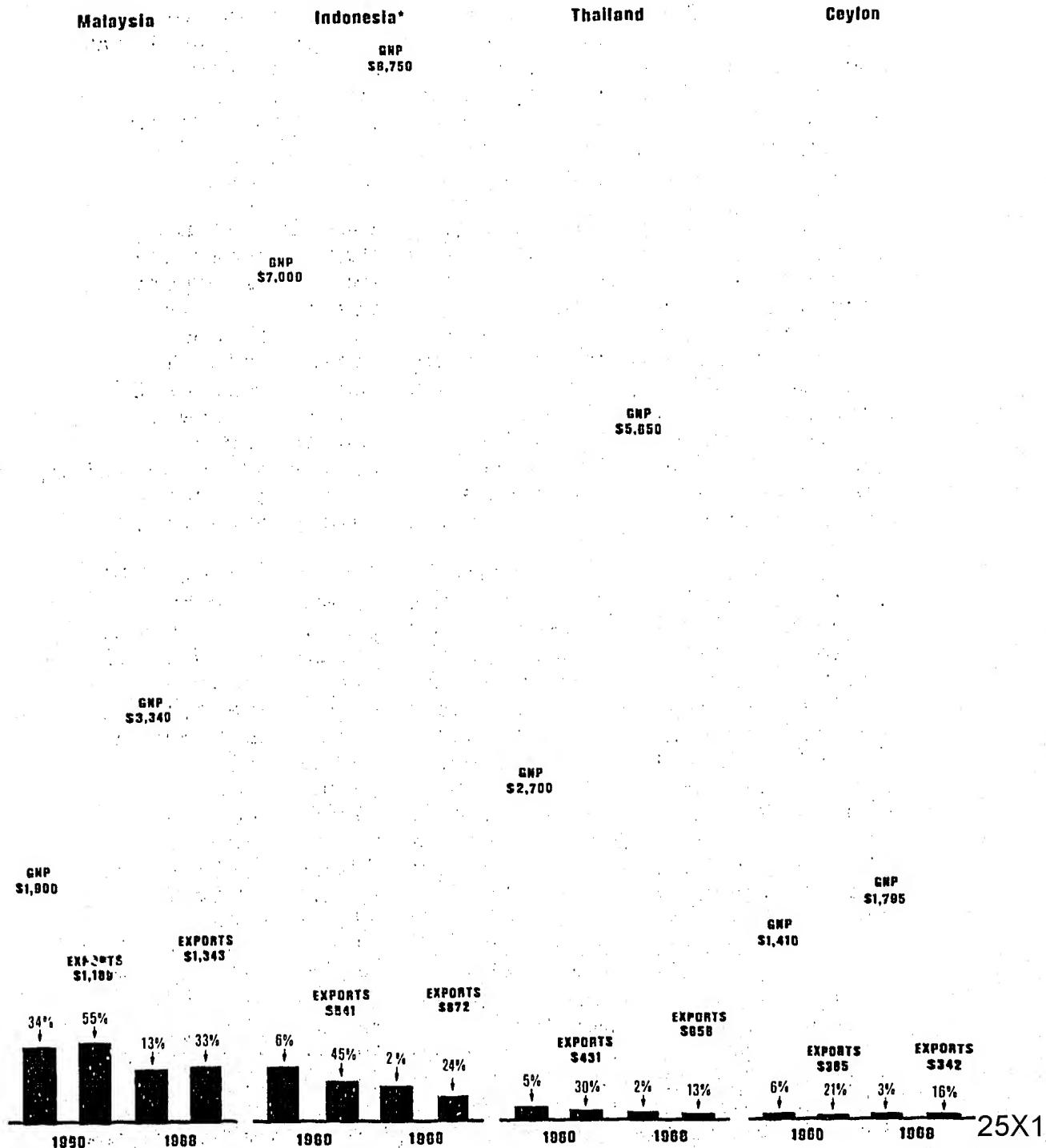
12. Thailand also achieved a very satisfactory rate of economic growth during the 1960s. Production of many commodities other than rice grew rapidly and the country benefited from US-Vietnam related military spending. Thailand's export earnings increased considerably between 1960 and 1968 -- about 5½% annually. Rubber now constitutes

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FIGURE 4

NATURAL RUBBER AND MAJOR EXPORTING COUNTRIES
 (Million US\$ and Rubber as Percent of Total)



*Estimated GNP data

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only about 15% of total Thai exports compared with 30% in 1960. Most other rubber exporting countries, except Indonesia, Ceylon, Cambodia, and South Vietnam, also registered fairly rapid export growth during the 1960s. Ceylon remained highly dependent on stagnating tea exports, Indochina was wracked by war, and Indonesia suffered from the disastrous economic policies of the Sukarno era. Indonesia is now benefiting from rapidly rising petroleum and timber exports, which promise to dwarf rubber in importance. In summary, by the start of the 1970s most major rubber exporting countries had become less vulnerable to falling rubber prices because their export mix was considerably more diversified.

The US Rubber Stockpile

13. In 1970, with world rubber prices again on the decline, the prospect of the US reducing its natural rubber stockpile had once more become of increasing concern to major world exporters. The strategic stockpile, built up rapidly during and after the Korean War, reached more than 1.2 million tons, or a two-year supply, by the late 1950s. At that point efforts were made to reduce the stockpile, in part because of the availability of synthetics, and disposals began in late 1959. Deliveries averaged about 90,000 tons annually through early 1969 when sales were ended because the new stockpile objective of 370,000 tons had been reached.

14. In March 1970, Washington announced plans to further reduce stocks by 170,000 tons to a level of 200,000 tons -- roughly a six-month supply. The disposal rate would be about 85,000 tons a year. This plan, however, stirred an immediate reaction from leading exporting nations who, seeing stock disposals as worsening prices in an already soft world market, requested US sales be postponed until world prices improved. The US Government response was to temporarily curtail further disposals in September 1970, after only some 25,000 to 30,000 tons had been sold.

15. The US Government 1970 rubber sales program doubtless had some short run effect on the world market. Like many primary products traded in

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international markets, rubber prices respond sharply to sudden, even though small, changes in supply and/or demand. For example, following a recent 600-ton purchase by Communist China on the Singapore commodity market, China's first purchase there in about nine months, world prices jumped more than 5% in one day. In this volatile type of market, the resumption of US stock disposals would be expected to have an immediate depressing impact on prices.

16. Beyond an immediate reaction, however, US stock disposals probably contributed little to falling prices during 1970. A price run-up had already peaked in August 1969, and quotations began a steep decline soon after. Indeed, during the six months following the US announcement on stock disposals (March 1970), prices fell less than in the previous six months. Moreover, the downward price trend continued largely unabated even after stock disposals were halted in September. Although the US automotive strike around that time contributed to softness in the rubber market, prices continued to decline after the strike ended in November 1970. Actual deliveries from the US stockpile during 1970 were less than 1% of total world natural rubber consumption. Even though the existence of the US disposal plan was a depressant, the softening prices primarily reflected more basic and long-term influences.

Outlook

17. Natural rubber prices are likely to trend downward over the next several years with or without US stock disposals of the magnitude planned. Sharp short-term fluctuations will undoubtedly continue to occur, such as the run-up in the face of unexpected Communist Chinese purchases in 1970. The general industry view is that prices will trend lower over the next few years; estimates of probable price levels range between 15 cents and 18 cents a pound.

18. Synthetic price movements will be the major determinants of natural rubber price trends. World synthetic output is expected to continue to grow, paced by the construction of new facilities

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in countries such as Japan, where substitution for natural rubber still has extensive possibilities. New processing equipment will result in lower production costs. A recent World Bank study projects prices for polyisoprene, a near-perfect substitute for natural rubber, to fall from the current 20 cents level to about 18 cents a pound by 1975, polybutadiene from 20 cents to 15 cents, and a decline of approximately two cents per pound is projected for styrene-butadiene. Other experts believe that continued inflation will offset the effect of process improvements, at least in part. Higher labor and raw material costs -- especially for crude oil -- could have this effect. If synthetic prices continue their long-term decline, as expected, this will be mirrored in the movement of natural rubber quotations.

19. Resumption of stockpile disposals, now proposed for no later than March 1971, is not likely to have a great influence on natural rubber prices. According to a recent study,* US stockpile sales during the early and mid-1960s, when they equalled about 4% of total world consumption, resulted in prices being just over 1 cent per pound lower than if there were no disposals.** Plans now call for stock sales to run at almost 73,000 tons annually through early 1973 or roughly 2% of expected total world natural rubber consumption. Such a marginal addition to supplies is unlikely to result in price declines averaging much more than one-half cent per pound over the disposal period.

20. As they have in years past, major natural rubber producers will likely try to offset price declines by cutting production costs and/or increasing output. Efforts are now underway to

* Behrman, J.R., *An Econometric Study of the World Rubber Market 1950-1980*, an unpublished paper prepared for the General Services Administration.

** This somewhat overstates the impact of US stock disposals on rubber prices because the calculations used in the study included disposals by the United Kingdom. During the period under investigation the United States accounted for about 80% of total deliveries from government-held stocks.

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further reduce production costs by raising yields. In Indonesia, where planting high-yielding variety trees started late, gains in efficiency will be more easily achieved than in Malaysia, where most of the area has already been replanted. In Malaysia, the use of chemical treatments, still in the experimental stage, promises to increase yields significantly. In the near term, Malaysia will benefit from lower costs achieved by new processing methods. Specifically, rather than the traditional crepe or sheet, increasing quantities of rubber are being processed into liquid form or as block rubber.

21. Demand for natural rubber is expected to increase from 3% to 4% annually. A worse case for natural rubber-producing countries would be if natural prices drop to 15 cents per pound by 1975 and synthetic prices fall proportionately. Under these circumstances, sales would increase at the lower 3% annual estimate. Even so, earnings through 1975 would remain above the 1968 level because of increased output, although below the 1969 level, when prices were relatively high.

22. The development of new growth industries is already underway in Malaysia and Indonesia. Timber, palm oil, and light manufactures are stimulating Malaysian economic growth while Indonesia will gain increased exports of crude oil and timber. Malaysia also has large foreign exchange reserves which could be used to cushion a sudden drop in export earnings from a single commodity, such as rubber. Thailand's short-term export prospects are not as bright as those of Malaysia, but its foreign exchange reserves are high -- equal to about seven months imports. In any case, Thailand's export growth would be less affected by stagnating rubber earnings since in her case rubber provides the smallest share of total exports among the big three producers.

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Conclusions

23. In the 1960s natural rubber prices dropped sharply while demand grew slowly. The rapid expansion of high quality and low cost synthetic rubber production was the major cause of this development. Releases from US stockpiles had only a marginal impact on natural rubber supplies or prices. Except for those countries undergoing economic disruption for political or military reasons such as Indonesia and South Vietnam, most natural rubber producers were able to offset the effect of declining prices by expanding rubber output and, by developing new export commodities. Malaysia, which accounts for almost half of world rubber exports, lowered production costs dramatically and increased production by more than 50% through extensive modernization. At the same time she successfully fostered new exports particularly timber. In the Malaysian and Thailand cases, economic growth has continued at satisfactory levels, and foreign exchange reserves are high.

24. Natural rubber prices are likely to continue to fall through 1975 primarily because of developments in the synthetic rubber industry. Releases from US stockpiles, at levels presently planned, would represent about 2% of new rubber supply and are estimated to have about a one-half cent a pound downward effect on prices. For their part, major exporting countries are now in a strong position to cope with the declining prices. Programs are underway in these countries to increase yields, and new processing techniques have been developed to improve quality and further reduce production costs. Rising consumption will help to compensate for lower prices, and income losses, if any, should be far less than experienced during the 1960s. Rubber now accounts for a much smaller portion of exports among major producers than was the case a decade ago; programs to stimulate non-rubber exports further are under way and should provide the stimulus for continued economic growth.

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